Dr. Pranav A. Bhounsule

CONTACT INFORMATION

Office: 2.338 AET Building,
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3.04.02 Engineering Building,
One UTSA Circle, San Antonio, TX 78249

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E-mail: pranav.bhounsule@utsa.edu
WWW: http://aux.coe.utsa.edu/ ∼pab

EDUCATION

Ph.D., Mechanical Engineering , Aug. 2006 – May 2012
Cornell University, Ithaca, NY, USA

M. Tech., Department of Applied Mechanics , Aug. 2004 – May 2006
Indian Institute of Technology Madras, Chennai, Tamil Nadu, India.

B.E., Mechanical Engineering , July 2000 – May 2004
Goa College of Engineering, Farmagudi, Goa, India.

PROFESSIONAL EXPERIENCE

Assistant Professor Aug. 2014 to present
Mechanical Engineering, University of Texas at San Antonio

Postdoctoral Researcher Jan. 2012 to July 2014
Disney Research, Pittsburgh

Visiting Researcher (Courtesy Appointment) Jan. 2012 to Dec. 2013
Robotics Institute, Carnegie Mellon University, Pittsburgh

AWARDS AND DISTINCTIONS

- Second place paper award in the American Society Education Engineering Gulf SouthWest Conference, 2018.
- 2018 Faculty Mentor Award for Undergraduate Research, UTSA.
- San Antonio Business Journal 40 under 40, 2017.
- National Science Foundation (NSF) CISE Research Initiation Initiative Award, 2016.
- Department of Mechanical Engineering, UTSA, Teaching Award 2015-2016.
- Best paper in Biological Inspired Robotics, Climbing and Walking Robots Conference 2012.
- Harriet-Davis Fellowship, Cornell University, 2006-2007.
- Goa Scholar, Government of Goa, India, 2006-2007.
- Usha Kothandaran Prize, Indira Silvasailam Prize and Prof BVA Rao endowment prize for securing highest GPA in applied mechanics and engineering mechanics, IIT Madras, India 2006.
- V M Salgaocar Award for securing First rank in Mechanical Engineering, Goa University, Goa, India, 2004.

STUDENT DISTINCTIONS

- Drishya Dahal, 3 “Best in Show" at the 2018 Undergraduate Research & Creative Inquiry Showcase in the College of Engineering for tic-tac-toe robot.
- Joseph Galloway and Gerardo Aaron Rios, 3 “Best in Show" at the 2018 Undergraduate Research & Creative Inquiry Showcase in the College of Engineering for pumping swing pendulum robot
- Joseph Galloway, McNair Scholar 2017, 2018.
- Joseph Galloway, UTSA Office of Undergraduate Research Scholarship, Fall 2017.
- Drishya Dahal and Shicheng Zhou, UTSA Office of Undergraduate Research Scholarship, Spring 2017.
- Geoffrey Toombs and James Schopfer, Finalist in the Instructables Robotic Contest 2016 for Romo-bot animatronics face (only 19 finalists out of 222 entries).
- Christian Trevino, Most Exceptional Graduate Student, 2015-2016. Awarded to UTSA, College of Engineering graduate student.

- Christian Trevino, Valero VIP MS Research Scholarship Outstanding Awards 2015. Awarded to UTSA, College of Engineering incoming graduate student with outstanding research credentials.
- Javier Gonzalez and Roberto Mexquitic, McNair Scholars 2015.
- Racquel De La Garza, Christian Trevino, Robert Brothers, and Eric Sanchez. Second place in Senior Design, Spring 2015 for Ein: A modular robot leg.
- Rico Jovanni Ulep, Kyle Seay, Scott Miller, and Ezra Ameperosa, 3rd place Senior Design, Spring 2015. Third place in Senior Design, Spring 2015 for Roadrunner: a rimless wheel based legged robot.

BOOK CHAPTER

[B1] P. A. Bhounsule, Control based on passive dynamic walking *Bioinspired Legged Locomotion: Models, Concepts, Control and Applications*, 1st edition, Editors: Maziar Sharbafi and André Seyfarth. Publisher: Elsevier, Butterworth-Heinemann, 2017, ISBN. 9780128037744

JOURNAL PUBLICATIONS

[J1] Jeremy Krause*, Pranav A. Bhounsule, A 3D Printed Linear Pneumatic Actuator for Position, Force and Impedance Control, Actuators 2018, 7(2), 24; doi:10.3390/act7020024

[J2] P. A. Bhounsule and A. Zamani* A Discrete Control Lyapunov Function for Exponential Orbital Stabilization of the Simplest Walker, *ASME Journal of Mechanism and Robotics*, 2017; 9(5):051011-051011-8. doi:10.1115/1.4037440.

[J3] P. A. Bhounsule, Two benchmarks for optimization of legged robots – hybrid systems with impulse effects, *Dynamics of Continuous, Discrete and Impulsive Systems Series B: Applications and Algorithms*, 24 (2017) 269-282.

[J4] P. A. Bhounsule, K.Yamane. Accurate Task-Space Tracking for Humanoids with Modeling Errors using Iterative Learning Control. *Intl. Journal of Humanoid Robots*, Vol. 14, No. 3, 2017, 1750015 DOI: 10.1142/S0219843617500153

[J5] P. A. Bhounsule and A. Zamani* Stable Bipedal Walking Motions with a Swing-Leg Protraction Strategy *J. of Biomechanics*, 51:123-127, 2017, http://dx.doi.org/10.1016/j.jbiomech.2016.11.063.

[J6] P. A. Bhounsule, A. Ruina, and Gregg Steisberg. Discrete Decision Continuous Actuation control: balance of an inverted pendulum and pumping a pendulum swing. *ASME Journal of Dynamic Systems, Measurement and Control*, 137(5), 051012, 2015.

[J7] P. A. Bhounsule. Control of a compass gait walker based on energy regulation using ankle push-off and foot placement, *Robotica*, Vol 33, Issue 6, pp 1314–1324, 2014.

[J8] P. A. Bhounsule. Foot placement in the simplest slope walker reveals a wide range of walking solutions, *IEEE-Transactions on Robotics*, Vol 30, Issue 5, 1255–1260, 2014. DOI: 10.1109/TRO.2014.2328796.

[J9] P. A. Bhounsule. Numerical accuracy of two benchmark models of walking: the rimless wheel and the simplest walker. *Dynamics of Continuous, Discrete and Impulsive Systems Series B: Applications and Algorithms*, vol. 21, pp 137–148, 2014.

[J10] P. A. Bhounsule, J. Cortell, A. Grewal, B. Hendriksen, J. G. D. Karrsen, C. Paul, and A. Ruina, Low-bandwidth reflex-based control for lower power walking: 65 km on a single battery charge, *International Journal of Robotics Research*, vol.33 no.10, 1305-1321, 2014. DOI: 10.1177/0278364914527485. http://ijr.sagepub.com/content/33/10/1305.refs.html

PEER-REVIEWED CONFERENCE PUBLICATIONS

[C1] Pranav A. Bhounsule, Ali Zamani* and Jason Pusey, Switching between Limit Cycles in a Model of Running Using Exponentially Stabilizing Discrete Control Lyapunov Function, American Controls Conference (ACC), Milwaukee, WI, USA June 27 - 29, 2018.

[C2] Pranav A. Bhounsule, Ahmad Taha, and Sebastian Nugruho, Control Systems and Robotics Outreach to Middle-school Girls: Approach, Results, and Suggestions, Proceedings of the 2018 ASEE Gulf-Southwest Section Annual Conference The University of Texas at Austin, TX, USA, April 4-6, 2018.

[C3] Ali Zamani* and Pranav Bhounsule. Foot Placement and Ankle Push-off Control for the Orbital Stabilization of Bipedal Robots IEEE/RSJ Intl. Conference on Intelligent Robots and Systems, Vancouver, BC, Canada, September 24-28, 2017.

[C4] Matthew Piper*, Pranav A. Bhounsule, and Krystel K. Castillo-Villar. How to beat Flappy Bird: A mixed-integer model predictive control approach, ASME-Dynamics Systems and Controls Conference 2017.

[C5] Jeremy Krause* and Pranav A. Bhounsule, Variable position and force control of a pneumatically actuated knee joint, ASME-International Design Engineering & Technical Conference 2017.

[C6] Pranav A. Bhounsule, Deborah Chaney, Lorena Claeys and Randall D. Manteufel. Robotics service learning for improving learning outcomes and increasing community engagement. *American Society of Engineering Education Gulf-South West Section* Dallas, Texas, USA, March 13-14, 2017.

[C7] Pranav Bhounsule, Jason Pusey, Chelsea Moussouni#, A comparative study of leg geometry for energy-efficient locomotion, IEEE International Conference on Simulation, Modeling, and Programming for Autonomous Robots (SIMPAR), San Francisco, USA Dec 13-16, 2016

[C8] Pranav Bhounsule, Katsu Yamane, Abhishek Bapat*, A task-level iterative learning control algorithm for accurate tracking in manipulators with modeling errors and stringent joint limits, ASME-Dynamics Systems and Controls Conference, Minneapolis, MN, USA Oct 12-14, 201

[C9] Pranav A. Bhounsule, Ezra Ameperosa#, Scott Miller#, Kyle Seay#, Rico Ulep#, Deadbeat control of walking for a torso-actuated rimless wheel using an event-based, discrete, linear controller, ASME-International Design Engineering & Technical Conference, Charlotte, NC, USA Aug 21–25, 2016.

[C10] A Zamani*, P. A. Bhounsule, A. Taha. Planning energy-efficient bipedal locomotion on patterned terrain. In Proc. SPIE 9837, Unmanned Systems Technology XVIII, Baltimore, Maryland, USA, April 20-21, 2016. DOI:10.1117/12.2223447; http://dx.doi.org/10.1117/12.2223447

[C11] P. A. Bhounsule and R. D. Manteufel. Short video clips to increase student engagement in mechatronics. *American Society of Engineering Education Gulf-South West Section* Fort Worth, Texas, USA, March 6-8, 2016.

[C12] P. A. Bhounsule, K.Yamane. Iterative Learning Control for Accurate Task-Space Tracking with Humanoid Robots *IEEE-International Conference on Humanoid Robots 2015*, Seoul, South Korea, Nov 3 - 5, 2015.

[C13] P. A. Bhounsule, K.Yamane. Iterative Learning Control for High-Fidelity Tracking of Fast Motions on Entertainment Humanoid Robots. *IEEE-International Conference on Humanoid Robots*, Atlanta, Georgia, USA, Oct 15 - 17, 2013.

[C14] P. A. Bhounsule, J. Cortell, A. Ruina. Design and control of Ranger: an energy-efficient, dynamic walking robot. *Climbing and Walking Robots CLAWAR*, 441–448, 2012. **Best paper in Biologically Inspired Robotics**

NON-PEER REVIEWED CONFERENCE PAPERS/POSTERS

[C15] Christopher von Brecht[#], Brian Kramer[#], Pranav Bhounsule, Amir Jafari. An impulse actuator for high speed & high torque applications, Dynamic Walking 2016, Holly, Michigan, USA, June 4 - 7, 2016

[C16] Ali Zamani[*], Pranav A. Bhounsule, Jonathan Hurst. Energy-efficient planning for dynamic legged robots on patterned terrain, Dynamic Walking 2016, Holly, Michigan, USA, June 4 - 7, 2016

[C17] Robert Brothers[#], Raquel De La Garza[#], Eric Sanchez[#], Christian Trevino[#], Pranav Bhounsule, Ein: A Modular Robotic Leg, Dynamic Walking 2015, Columbus, Ohio, USA.

[C18] Scott Miller[#], Ezra Ameperosa[#], Kyle Seay[#], Rico Jovanni Ulep[#], Pranav Bhounsule, The Roadrunner: A 2-D Powered Rimless Wheel Robot for Energy-efficient and Rough Terrain Locomotion, Dynamic Walking 2015, Columbus, Ohio, USA.

[C19] P. A. Bhounsule, J. Cortell, A. Ruina, How one might realize practical, energy-efficient legged robots: 19 thoughts/ideas from the Cornell Ranger project, Dynamic Walking 2012, Pensacola, Florida, USA.

[C20] P. A. Bhounsule, Cornell ranger: Energy optimal control, Dynamic Walking 2009, Vancouver, Canada.

[C21] P. A. Bhounsule, Cornell ranger: computer simulation and experimental fits, Dynamic Walking 2008, Delft, Netherland.

[C22] P. A. Bhounsule, M Kishore Kumar, S.M. Sivakumar, Rate effects in Martensitic Transformations - A crystal plasticity approach. *World Congress on Computational Mechanics*, Los Angeles, USA, 2006.

[C23] P. A. Bhounsule, M Kishore Kumar, S.M. Sivakumar, Rate effects in Martensitic Transformations - A crystal plasticity approach. *World Congress on Computational Mechanics*, Los Angeles, USA, 2006.

THESIS

[T1] Geoffrey Chiou: Reducing The Variance Of Intrinsic Camera Calibration Results In The ROS Camera_Calibration Package, The University of Texas at San Antonio, San Antonio, TX, USA, December 2017.

[T2] Christian Trevino: A Miniature Size 3d Printed Linear Pneumatic Actuator For Robotic Applications, MS Thesis, Mechanical Engineering, The University of Texas at San Antonio, San Antonio, TX, USA, December 2017.

[T3] Matthew Piper: How to beat Flappy Bird: A mixed-integer model predictive control approach, MS Thesis, Mechanical Engineering, The University of Texas at San Antonio, San Antonio, TX, USA, May 2017.

[T4] Abhishek Bapat: Design, prototyping and testing of an autonomous robot with C shaped compliant legs: AbhisHex, MS Thesis, Advanced Manufacturing and Enterprise Engineering, The University of Texas at San Antonio, San Antonio, TX, USA, December 2016.

[T5] Christian L. Trevino, "Modern Day Advanced Manufacturing of Antique Toy Walkers", BS Thesis, Honors College, The University of Texas at San Antonio, San Antonio, TX, USA, August 2015.

[#] indicates under-graduate student

[T6] Pranav A. Bhounsule, "A controller design framework for bipedal robots: Trajectory optimization and event-based stabilization", PhD Thesis, Cornell University, Ithaca, NY, USA, May 2012.

INVITED TALKS

[I1] P. A. Bhounsule, Control and design of energy-efficient walking robots, *KodLab, University of Pennsylvania*, Sep 26, 2016

[I2] P. A. Bhounsule, Motion planning and control of humanoid robots, *Army Research Laboratory, Aberdeen Proving Ground*, Aug 10, 2016

[I3] P. A. Bhounsule, Towards Better Humanoid Robots: Challenges and Possible Solutions, *Electrical and Computer Engineering Department Graduate Student Seminar Series, U Texas San Antonio, TX, USA* 3 April 2015.

[I4] P. A. Bhounsule, Towards Better Humanoid Robots: Challenges and Possible Solutions, *Biomedical Engineering Department Graduate Student Seminar Series, U Texas San Antonio, TX, USA* 13 February 2015.

[I5] P. A. Bhounsule, Energy-efficient, stable bipedal walking robots using reflex-based control, *Texas Biorobotics Workshop at ASME Dynamic Systems and Controls Conference, San Antonio, TX, USA* 22 October 2014.

[I6] P. A. Bhounsule, Towards Better Humanoid Robots: Challenges and Possible Solutions, *Mechanical Engineering Department Seminar Series, U Texas San Antonio, TX, USA* 12 September 2014.

[I7] P. A. Bhounsule, Gait planning and control of walking robots based on energy regulation between steps, *Workshop on Dynamic Locomotion at Robots Science and Systems (RSS), Berkeley, CA, USA* 13 July 2014.

[I8] P. A. Bhounsule, Towards better entertainment humanoids: challenges and possible solutions. Mechanical Engineering Department, University of Nevada Las Vegas, 21 April 2014.

[I9] P. A. Bhounsule, Motion control of humanoid robots using optimal control and iterative learning. Mechanical Engineering Department, University of Texas at San Antonio, 17 March 2014.

[I10] P. A. Bhounsule, Motion control of humanoid robots using optimal control and iterative learning. Mechanical Engineering Department, New Mexico State University, 10 March 2014.

[I11] P. A. Bhounsule, Motion control of humanoid robots using optimal control and iterative learning. Mechanical Engineering Department, Arizona State University, 3 March 2014.

[I12] P. A. Bhounsule, Modeling and control of two hydraulic robots: Sarcos humanoid and Disneys audio-animatronics, *Workshop on Hydraulics Robots at International Conference on Robotics and Automation, Karlsruhe, Germany* 10 May 2013

[I13] P.A. Bhounsule, How we got a robot to walk non-stop for 40.5 miles using about 6 cents worth of electricity. Mechanical Engineering Department, University of Texas at El Paso, 28 March 2013.

[I14] P. A. Bhounsule, How we got a robot to walk non-stop for 40.5 miles using about 6 cents worth of electricity. Mechanical Engineering Department, Cleveland State University, 17 March 2013.

[I15] P. A. Bhounsule, How we got a robot to walk non-stop for 65 km using about Rs 4 worth of electricity. Mechanical Engineering Department, Indian Institute of Technology Bombay, 20 November 2012

[I16] P. A. Bhounsule, Smooth discrete feedback control of walking robots: An intermediate between fully passive and high bandwidth feedback control *Workshop on humanoids, Pittsburgh, PA, USA*. 3 November 2012

[I17] P. A. Bhounsule, Cornell Ranger: Energy-efficient stable walking via trajectory optimization and feedback control. Robotics Institute, Carnegie Mellon University, 26 August 2011

[I18] P. A. Bhounsule, A. Ruina, Smooth discrete control of walking robots: An intermediate between fully passive and high bandwidth feedback control, *Session on Locomotion, Word Congress on Biomechanics, Singapore*, 5 August 2010.

MEDIA COVERAGE

- 2018 Undergraduate Research and Creative Inquiry Showcase award winners announced, May 4, 2018
- Robotics and Motion Lab promoting the Doseum's new exhibit Science Fiction Science Now
  - Kens 5 TV San Antonio: October 12, 2017. Andrew Waterreus, ME UTSA graduate student features from 2:30 to 3:30 with UTSA Darwin OP2
  - San Antonio Express News: October 9, 2017. Kids can explore science possibilities in DoSeum exhibit
- San Antonio Business Journal 40 under 40
  - SABJ's 2017 40 Under 40 winners announced, Jan 10, 2017
  - SABJ's 40 Under 40 honors three members of UTSA engineering faculty, UTSA News, Jan 12, 2017.
- How to turn an old smartphone into surveillance camera, KSAT Nov 7, 2016
- Service Learning, ME4773 Fundamentals of Robotics.
  - ATE brings service learning opportunities to COE, Sep 8, 2016.
  - Education + Engineering = Success, ATE brings service learning opportunities to COE, Winter 2016
- UTSA photo of the day
  - Innovative Robots, June 14, 2016
  - Strutting Rowdy, April 28, 2016.
  - Rowdy on the run, Jan 5, 2016.
  - Battling Robots, Dec 10, 2015.
- Animatronics face: Romo-bot
  - Adafruit Blog: The RomoBOT, an Arduino Powered Animatronic Face, May 16, 2016
  - Arduino Blog: Two College Students Build A Hilarious Animatronics Face, May 13, 2016
  - Hackaday: Robo Face Speaks, May 12, 2016
- Rowdy walker
  - Texas researchers re-engineer vintage toy to walk right out of 3D printer, May 11, 2016.
  - Recreating Antique Toys with Modern Technology, May 9, 2016.
- UTSA professor receives grant to create more versatile legged robots, UTSA Today, May 2, 2016.

- Paper walker workshop at San Antonio, Children's Museum
  - COE students volunteer at the DoSeum, UTSA Innovations Magazine, Jan 29, 2016 (back cover).
  - Engineering students team up with The DoSeum for STEM outreach, UTSA Community Connect, Fall 2016
- Robotics Frontiers, Students are taking engineering skills to new levels, including bots that interact with humans, UTSA Sombrilla Magazine July 6, 2015.
- Mechatronics Rowdy Bots contest on UTSA College of Engineering Innovations Magazine, Spring 2015 issue.
- UTSA student's dancing pendulums find home in The DoSeum June 23, 2015.
- Are walking, talking, feeling robots like Chappie in our future? 5 March 2015, Interviewed by KC Gonzalez, San Antonio, Texas.
- Bipedal Robots (Radio), 29 January 2015. Interviewed by Meghan Bishop, WOAI 1200AM, San Antonio, Texas.
- My PhD thesis on developing energy-efficient control algorithms for a walking robot led to a world record. This record remains unbroken since 2011. The robot walked non-stop 40.5 miles (65 km) without recharging using only 6 US cents worth of electricity. Related media coverage is listed here.
  - *TV channels:* NTDTV, Reuters
  - *Popular websites:* MSNBC, Engadget, Gizmag, Popsci, IEEE Spectrum, Wired news, Science Daily, PC World.

FUNDING

[F1] PI: David Akopian, co-PI Yongcan Cao, Pranav Bhounsule (26%), Boing Go-Fly contest Phase I, Private Donation $38,000, Jan 1, 2018 to May, 2018.

[F2] PI: Pranav Bhounsule (100%), Collaborative Research: Engineering Identity, its Predictors, and its Impact on Retention across Educational Stages, NSF Engineering Education, Subcontract University of Texas at Austin $7000, Aug 1, 2018 to July 31, 2019.

[F3] PI: Pranav Bhounsule (100%), NSF REU: CRII: RI Energy effective and versatile bipedal robots using event-based switching between parameterized steady-state controllers, NSF-IIS, RI $8000, Aug 1, 2018 to July 31, 2019.

[F4] PI: Ahmad Taha (34%), coPIs Chunjian Qian (33%) and Pranav Bhounsule (33%) Control Systems Education and Outreach to Low-Income High-School Students in San Antonio, IEEE Control Systems Society, 2017-2018, Total $10,000

[F5] PI: Pranav Bhounsule (100%) Accelerated path teaching for robotic routing using ROS Industrial framework, Southwest Research Institute (SwRI), 2016-2017, Total $47,097.

[F6] PI: Pranav Bhounsule (80%), Amir Jafari (20%) Highly customizable, light weight artificial legs based on embedding actuators and sensors in 3D printed parts. Grants for Research Advancements and Transformation (GREAT), UTSA Internal Proposal, 2015-2016. $20,000.

[F7] PI: Pranav Bhounsule (100 %), CRII: Energy effective and versatile bipedal robots using event-based switching between parameterized steady-state controllers. NSF-IIS-CRII, 2016-2018, $159,024.

[F8] PI: Pranav Bhounsule (100 %) Tackling high D/F/W rates in Engineering Dynamics through a games-based pedagogy. Sawtelle Financial Teaching Innovation Grant 2016-2017, $3,000.

INNOVATIONS DISCLOSURE

[D1] A method to prototype a fully assembled ramp toy walker by use of additive manufacturing, Christian Trevino[#] and Pranav. A. Bhounsule, Office of Commercialization and Innovation, UTSA, 2015.

TEACHING EXPERIENCE

Instructor, University of Texas at San Antonio, San Antonio, TX, USA Aug. 2014 –

- EGR 2513: Dynamics (Spring 2017, Fall 2017, Spring 2018).
- ME 4773: Fundamentals of Robotics (Fall 2014, Fall 2015, Fall 2016, Fall 2017).
- ME 5493: Robotics (cross listed with ME 4773) (Fall 2016).
- ME 4543: Mechatronics (Spring 2015, Fall 2015).
- ME 3543: Dynamic Systems and Controls (Spring 2016).

Teaching Assistant, Cornell University, Ithaca, NY Jan. 2008 to Dec. 2011

- ENGRD 2020: Mechanics of Materials (Fall 2008).
- ENGRD 2030: Dynamics (Spring 2009, Fall 2010, Spring 2011).
- MAE 3260: System Dynamics (Summer 2010).
- TAM 3100: Introduction to Applied Mathematics (Spring 2008 and Summer 2008).
- ENGRD 1920: Multivariable calculus for engineers (Fall 2011).
- ENGRG 1060: Explorations in Engineering (Summer 2011) (Course for high-schoolers).

Teaching Assistant, Indian Inst. of Tech. Madras, Chennai, TN, India Aug. 2004 to May 2006

- AM 1100: Engineering Mechanics (Spring 2006).
- AM 2540: Applied Mechanics Laboratory (Fall 2004 and Fall 2005).
- AM 5600: Computational Techniques in Applied Mechanics (Fall 2005).

GRADUATE STUDENT ADVISING

PhD students in progress (year joining),
Ali Zamani (Fall 2015).

MS students in progress (year joining),
Eric Sanchez (Fall 2015), Ezra Ameperosa (Fall 2015), Robert Brothers (Spring 2016) , Jeremy Krause (Fall 2016), Andrew Waterreus (Fall 2017), Salvador Echeveste (Fall 2017), Moosfika H Treesha (Spring 2018).

Geoffrey Chiou
Mechanical Engineering (MS), University of Texas at San Antonio. Reducing The Variance Of Intrinsic Camera Calibration Results In The ROS Camera_Calibration Package (MS Thesis). Fall 2016 - Dec 2017.

Christian Trevino
Mechanical Engineering (MS), University of Texas at San Antonio. A Miniature Size 3d Printed Linear Pneumatic Actuator For Robotic ApplicationsA Miniature Size 3d Printed Linear Pneumatic Actuator For Robotic Applications (MS Thesis). Fall 2016 - Dec 2017.

Matthew Piper
Mechanical Engineering (MS), University of Texas at San Antonio. How to beat Flappy Bird: A mixed-integer model predictive control approach (MS Thesis). May 2016 - May 2017.

[#] indicates under-graduate student

Abhishek Bapat
Advanced Manufacturing and Industrial Engineering (MS), University of Texas at San Antonio. Design, prototyping and testing of an autonomous robot with C shaped compliant legs: AbhisHex (MS Thesis). Jan 2016 - December 2016.

Christian Trevino
Mechanical Engineering (MS), University of Texas at San Antonio. Paper walker for the Inventors Workshop at the Children's Museum (Independent Study). Aug 2015 - December 2015.

Daniel Bray
Mechanical Engineering (MS Student), University of Texas at San Antonio. Computing position and orientation of objects using RGB-D cameras (ME 5973: Special Project). Jan 2015 – May 2015.

UNDERGRADUATE STUDENT ADVISING

BS students in progress,
Drishya Dahal (Spring 2017), Joseph Galloway (Spring 2017), Steven Farra (Summer 2017), Emiliano Rodriguez (Spring 2018).

Anthony Abundis, Michael Aguirre, Justin Castillo, Flavio Moreira Mechanical Engineering (Seniors), University of Texas at San Antonio, An Inchworm Robot, (Senior Design Project), Jan 2017 – Dec 2017.

Joseph Galloway, Gerardo (Aaron) Rios Mechanical Engineering (Juniors), University of Texas at San Antonio, Pumping a swing – simulation and experiments, (Independent Project), Sep 2017 – Dec 2017.

Drishya Dahal, Joseph Galloway Mechanical Engineering (Juniors), University of Texas at San Antonio, Trash bot – a trash collecting robot, (Independent Project), Jan 2017 – May 2017.

Kyle Lamoureux Mechanical Engineering (Senior), University of Texas at San Antonio, Drop Off Detection Sensor for Blind Persons, (Independent study), Jan 2017 – May 2017.

Sergio Molina, Paul Alabi, Omar Castro, Jonathan Sacket Mechanical Engineering (Seniors), University of Texas at San Antonio, Multi-link Robotic Manipulator, (Senior Design Project), Jan 2016 – Dec 2016.

Aspen Meineke, Bianca Dumlao, Noel Cantu, James Crisler Mechanical Engineering (Seniors), University of Texas at San Antonio, The Roadrunner Robot 2: The Rimless Wheeled Robot, (Senior Design Project), Jan 2016 – Dec 2016.

Chelsea Keaton
Mechanical Engineering (Senior), University of Texas at San Antonio. Spring mass hopper with Raibert-style decoupled controller (Independent Study). May 2016 – Dec 2016.

Panchajanya Karasani
Mechanical Engineering (Sophomore), University of Texas at San Antonio. Rowdy wear, a gadget to make quick decisions (Summer Project). May 2016 – August 2016.

Ivelisse Negroni, Noah Trent, Cesar Sifuentes, and Michael Turasz
Mechanical Engineering (Seniors), University of Texas at San Antonio. Jumping height augmentation device (Senior Design Project). Aug 2015 – May 2016.

Andy Plascencia, Tyler Rowe, Geoffrey Chiou
Mechanical Engineering (Seniors), University of Texas at San Antonio. Balancing a ball on a beam (Independent Study). Jan 2016 – May 2016.

Geoffrey Toombs and James Schopfer
Mechanical Engineering (Seniors), University of Texas at San Antonio. Animatronics Face – RomoBot (Independent Study). Jan 2016 – May 2016.

Christian Trevino
Mechanical Engineering (Senior), University of Texas at San Antonio.
- Physics Demonstration prototype using simple pendulum for San Antonio Children's Museum (Independent Project). Jan 2015-Feb 2015.
- Modern Day Advanced Manufacturing of Antique Toy Walkers (EGR 4993: BS Honors Thesis). Aug 2014-July 2015.
- Paper walker for the Inventors Workshop at the Children's Museum (Independent Study). Aug 2015 - December 2015.

Racquel De La Garza, Christian Trevino, Robert Brothers, and Eric Sanchez
Mechanical Engineering (Seniors), University of Texas at San Antonio. Development of a Robotic Leg (Senior Design Project). Aug 2014 – May 2015.

Rico Jovanni Ulep, Kyle Seay, Scott Miller, and Ezra Ameperosa
Mechanical Engineering (Seniors), University of Texas at San Antonio. Design and Construction of Rimless Wheel (Senior Design Project). Aug 2014 – May 2015.

Javier Gonzalez, Stacy Alexander, Roberto Mexquitic, and Thilo Janssen
Electrical and Computer Engineering (Seniors), University of Texas at San Antonio. SHUSHBot (Smart Humanoid Used for Silencing Humans): A robot that maintains silence in the library (Senior Design Project). Aug 2014 – May 2015.

Cory Royal, Curtis Odle, and William Morris
Electrical and Computer Engineering (Seniors), University of Texas at San Antonio. MAD (Mobile Automated Directory) Max : A guide robot (Senior Design Project). Aug 2014 – May 2015.

Gerardo Ramos
Mechanical Engineering (Junior/Senior), University of Texas at San Antonio. T-maze for neural experiments on mice (Independent Project) for Prof Alfonso Apicella, Dept of Biology, UTSA. Jan 2015-Aug 2016

Joshua Peterson
Mechanical Engineering (Senior), Cornell University. Dynamic Walking MATLAB Simulator (Senior Design Project). Aug 2008 – May 2009

High School Student Advising

Nour El-Ghori
3D printing of rolling cylinders for demonstration of energy principles
Senior High School Student, Jun - Aug 2017

Student Committee

Peter Mancuso, MS Thesis Committee 2015, ME, UTSA.

Karan Kurani, MS Special Project Committee 2015, ME, UTSA.

Karamjit Singh, MS Special Project Committee 2015, ME, UTSA.

Prithviraj Sarker, MS Special Project Committee 2016, ME, UTSA.

Abir Choubey, MS Special Project Committee 2016, ME, UTSA.

Nidheesh Seshadri MS Special Project Committee 2016, ME, UTSA.

Pranav Jagtap MS Thesis Committee 2016, ME, UTSA.

Zhaoxuan Li, PhD Thesis Committee 2017, ME, UTSA.

Amin Mirakholi, PhD Thesis Committee, 2017, ME, UTSA.

Corinne Nawn, PhD Thesis Committee, 2017, BME, UTSA.

Matthew Salazar, MS Special Project, 2017, ME, UTSA.

Christian Wahrmund, MS Thesis, 2018, ME, UTSA.

PROFESSIONAL SERVICE

Referee Service:

- Revew Panels
  - NSF (2014, 2015 twice, 2018).
- Books
  - *The MIT Press*
  - *Abdo Publishing* (Education book, content consultant).
- Editorial
  - *Associate Editor, ICRA 2017, ICRA 2018*
  - *Program Committee, RSS 2017*
- Journals
  - *IEEE-Transaction on Robotics and Automation (T-RO)*
  - *IEEE-Transactions on Mechatronics*
  - *Elsevier Mechatronics*
  - *International Journal of Robotics Research*
  - *IEEE-Robotics and Automation Letters*
  - *ASME Journal of Mechanisms and Robotics*
  - *Robotica*
  - *Journal of Intelligent and Robotic Systems*
  - *Robotics and Computer-Integrated Manufacturing*
  - *Advances in Mechanical Engineering*
  - *Advanced Robotics*
  - *Autonomous Robots*
  - *Automatica*
  - *PLOS ONE*
  - *Mechanism and Machine Theory*
  - *Journal of Biomechanics*
  - *ASME Journal of Biomechanics*
  - *ASME Journal of Theoretical Biology*
  - *IEEE Transactions on Systems, Man, and Cybernetics*
- Conferences
  - *International Conference on Robotics and Automation (ICRA)*
  - *Conference on Decision and Controls (CDC)*
  - *International Conference on Intelligent Robots and Systems (IROS)*
  - *International Conference on Advanced Intelligent Mechatronics (AIM)*
  - *International Conference on Humanoid Robots*
  - *International Symposium on Robotics and Mechatronics (ISRM)*
  - *International Conference on Rehabilitation Robotics (ICORR)*
  - *ASME Dynamics Systems and Controls Conference (DSCC)*
  - *ASME International Design Engineering Technical Conference (IDETC)*
  - *Robotics: Science and Systems (RSS)*

- *American Controls Conference (ACC)*
- *ASEE Gulf Southwest Conference (ASEE GSW)*
- *International Symposium on Robot and Human Interactive Communication (RO-MAN)*

- Committees
  - *ASME Mechanisms and Robotics Award Committee, ASME IDETC 2017, 2018*
  - *Swiss National Foundation Postdoctoral Award Review 2018*

- University Service
  - New faculty orientation panelist for the 2015 and 2016 cohort.

- College Service
  - College Administration Committee (2015-2017).

- Department Service
  - Aerodynamics Search Committee Member (2017-2018).
  - Faculty advisor for ASME Student Chapter, UTSA (2015-).
  - Medical Device Design Search Committee Member (2015-2016).
  - Course reorganization for Controls concentration for MS/PhD (2015-2016).
  - Robotics and Mechatronics Search Committee Member (2014-2015).
  - Mechanical Engineering Seminar Organizer (2014-2015).

Conference Service
- *Session moderator for ASME DSCC 2016*
- *Session moderator for ASME IDETC 2016*
- *Session moderator for ASEE Gulf Southwest Conference 2017*
- *Session moderator for Dynamic Walking 2010*
- *Session moderator for Dynamic Walking 2008*

ORGANIZATION SERVICE
- Co-organizer for Dynamic Walking 2015, Columbus, OH, USA
- Co-organizer for Dynamic Walking 2013, Pittsburgh, PA, USA
- Student organizer for International Conference on Computational and Experimental Mechanics 2005, Chennai, TN, India.

OUTREACH
- Robotics Applications: Earl Warren High School, San Antonio, TX, Feb 25, 2016. (Agenda: Talk; Numbers attended 50 high school students).
- Inventors Workshop, Do Seum, Children's museum, San Antonio, TX, Nov 14, 2015. (Agenda: Paper-based passive dynamics toy walkers led by Christian Trevino and Vibration based robots led by Christopher von Brecht; Numbers Attended: 50 people)
- Science Night, John Elementary School, San Antonio, TX, 11 Nov 2015 (Agenda: LEGO Robot contests and robot demonstration. Numbers attended: approx. 100 people)
- STEM Extravaganza, Somerset ISD, San Antonio, TX, 21 May 2015 (Agenda: Robot demos. Numbers attended: approx. 300 people)
- Judge for 2015 Texas Science and Engineering Fair, San Antonio, TX, March 28, 2015.
- Robotic Applications: Robotics Summer Camp for middle and high school students, University of Texas at San Antonio, August 8, 2014 (Agenda: Talk; Numbers attended: 40 students).
- Walking Robots talk to Ithaca High School students, 21 May 2010.
- Walking Robots demonstration and talk to prospective under-graduates to Cornell University, October 2008, 2009 and 2010.
- Walking Robots demonstration and talk to and prospective female under-graduates. April 2008, 2009 and 2010.
- Digitized and organized 18 years video collection of the biorobotics and locomotion laboratory. This amounted to 100+ hours of scientific/robot movies.